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ABSTRACT

A study was done to explore the perceptions of senior and junior faculty women regarding the barriers to success experienced early in their academic careers. The study population was drawn from a colleague pairing program at a major urban research university in the western United States and consisted of 22 junior faculty in tenure track positions matched with tenured senior faculty. A factor analysis of data from responses to surveys administered before the pairs met and after two semesters when the pairing program ended revealed three areas of concern: roles and responsibilities, a sense of belonging, and personal security. Further examination found significant differences between the senior and junior women's perceptions before and after the program on all three factors, namely that the perception of the importance of the factors decreased during the program for both junior and senior women. Also, junior women perceived most barriers as less problematic than their senior counterparts anticipated. The findings suggest important directions for programmatic efforts to retain and advance women as well as areas of needed research. Included are 4 tables and 27 references. (JB)

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Barriers to Success in Academic Life:

Perceptions of Faculty Women in a Colleague Pairing Program

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October 1991

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This paper was presented at the annual meeting of the Association for the Study of Higher Education held at the Park Plaza Hotel & Towers in Boston, Massachusetts, October 31-November 3, 1991. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

Barriers to Success in Academic Life:
Perceptions of Faculty Women in a Colleague Pairing Program

Abstract

The purpose of this study is to explore empirically the perceptions of senior and junior faculty women regarding the barriers to success experienced early in the academic career. A factor analysis of the responses of twenty-two pairs of faculty women participating in a colleague pairing program yielded the following three areas of concern: roles and responsibilities, sense of belonging and personal security. We analyze the differences between senior and junior women as well as differences before and after participation in the program. Implications of these perceptions for the ability of faculty women to help one another succeed are discussed.

Barriers to Success in Academic Life: Perceptions of Faculty Women in a Colleague Pairing Program

INTRODUCTION

Junior faculty women are more likely than faculty men to leave their academic institutions prior to tenure decisions and, although the findings are mixed, there is evidence that they are less likely than men to be tenured (Finkelstein, 1984; Johnsrud & Atwater, 1991; Rausch, Ortiz, Douthitt, & Reed, 1989; Stepina & Campbell, 1987). Although the number of tenure-track women has increased in the last decade, these new hires are clustered at the assistant professor rank (Touchton & Davis, 1991). It is evident that if the representation of faculty women across ranks is to reach parity, deliberate attention must be paid to the retention of junior women. From the perspective of the employing institution, efforts to enable the success of junior faculty women must begin with their socialization and orientation to the institution.

One formal means of socialization is the pairing of those who have successfully negotiated their academic career (i.e., full and associate professors) with those entering the profession (i.e., assistant professors). Such relationships are essentially intended to enable the success of the less experienced faculty member by providing ready access to an experienced resource person. Ideally, these relationships are based upon mutual regard; the purpose is information sharing, personal and

professional support, and career assistance; and the intent is to foster self-reliance. Relationships are most successful when the pair share to some degree a set of values and goals regarding their professional lives within the academy (Carter, 1982). On the basis of their experience, senior faculty women can anticipate and assist with the problems and issues faced by those with less experience.

Senior women, by virtue of being senior, have succeeded within the academy. Clark and Corcoran (1986) label them "survivors." In their study of tenured women in a major research university, they documented the role overload, lack of sponsorship, and exclusion from the collegial culture encountered by these women in their early career years. Cumulative evidence indicates that women experience the academy differently than their male peers; and thus, it is critical that women who have weathered the differences, and survived, help other women. What is less clear is whether there are differences in perceptions of the academy between senior and junior women faculty or whether their perceptions change over time. Do senior and junior women faculty members anticipate the same issues to be problematic? Have the barriers changed since senior women began their academic careers? Do relationships between women change their perceptions of the important barriers? Although the knowledge base regarding the experiences and perceptions of faculty women is rich and growing, little has been written about the commonalities and differences between the generations of academic women.

The purpose of this study was to explore empirically the perceptions of both senior and junior faculty women regarding the barriers to success experienced early in academic careers. Specifically, the following questions were addressed:

(1) What barriers are anticipated and experienced by junior women?

(2) What barriers are anticipated by senior faculty women to be problematic for junior women?

(3) What changes, if any, occur in the perceptions of senior and junior women after participation in a colleague pairing program?

THEORETICAL PERSPECTIVES

Women's experience in the academy

Women experience their academic careers differently than their male colleagues experience theirs. Most frequently documented is the difference in salary which persists across all academic ranks (Chronicle of Higher Education, 1991). Other, more subtle, disparities also distinguish women's experience. For example, faculty women report greater social isolation (Yoder, 1985); are less likely to be integrated into the male networks (Kaufman, 1978) that allocate resources such as research support, travel monies and opportunities to review or edit journals; spend less time in research related activities and more in teaching (Finkelstein, 1984); spend more time in service to the university (Carnegie, 1990); are more likely to have their scholarship trivialized and discredited (Kritek, 1984); express more uncertainty regarding their ability to meet tenure and promotion requirements (Lovano-Kerr & Fuchs, 1983); and receive less return

(e.g., promotion and research resources) to the quality of their publications than men do to theirs (Persell, 1983).

Women faculty are less well integrated into their departments than men are (O'Leary & Mitchell, 1990). They report more difficulty with relationships with their departmental colleagues as well as with their departmental chair, and more women who leave their positions cite these negative relationships as a primary reason for leaving (Johnsrud & Atwater, 1991). Faculty women report that they feel like "outsiders," that they do not belong (Aisenberg & Harrington, 1988).

Given the disparity in the retention and advancement of women in the academy, it is clear that these sex differences may serve as barriers to success for women. The goal of this study is to further our understanding of the unique experiences and perceptions of both senior and junior women faculty. Each of the barriers discussed in this study was identified in the literature documenting women's experience in the academy.

Colleague pairing relationships

There has been a good deal of attention in the literature to various models of relationships that foster career development, particularly "mentoring" and other grooming relationships. Perspectives on mentoring relationships have shifted markedly in the past decade. Initially the advantages of such relationships were highly touted; more recently, the potential dangers have been emphasized. In the higher education literature the major focus of the discussion has been on the traditional academic mentoring

relationship--an intense and lasting relationship between an established scholar and an advanced student in which the mentor guides, advises, supports and assists in the career and cognitive development. The problems cited within these relationships include failure to fulfill expected roles and functions, difficulty in establishing colleague status, and difficulty in balancing the professional and personal in their relationships (Haring-Hidore & Brooks, 1987). Other criticisms have focused on the hierarchical nature of these relationships, the imbalance of power, and the potential for dependency and exploitation.

Obviously, the classic mentoring definition does not fit the relationship between two faculty members. They are not teacher-student; they are colleagues. Nonetheless, there is a disparity in their experience, their knowledge, and their savvy. In many respects, although they may become peers, they are not peers yet. Thus, pairings between colleagues run some of the same risks as the classic mentoring relationships. Issues of power and dependency can arise. Rather than risk these liabilities, academic women are encouraged to engage in networking-mentoring relationships (Swoboda & Millar, 1986), to seek peer pals (Shapiro, Haseltine & Rowe, 1978), developmental relationships (Kram, 1983), multiple mentors (Hall & Sandler, 1983), and collegial networks (Pancrazio & Gray, 1982).

Nichols, Carter and Golden (1985) provide a comprehensive discussion of the "alternative strategies for empowering academic women (p. 383)." They present a typology of what they call "the academic patron system" which differentiates types of power

(formal and informal) and types of faculty orientation (professional and organizational). This typology yields four types of patrons for furthering one's career in academe: those with professional authority whose formal influence is beyond the organization and whose stature is in the discipline, those with organizational authority whose influence is within the organization based on the office held, those with professional influence whose informal influence is within the discipline, and those with organizational influence whose informal influence is within the organization.

They argue that, for the most part, academic women have not achieved either professional or organizational authority to the same extent that men have. Thus, women are more often in positions of informal influence rather than formal authority. Women with professional influence can help others to network by introducing them to colleagues and peers within the given discipline. Women with organizational influence can provide guidance, consultation, advice and advocacy for navigating the institution. Given women's limited access to formal authority, Nichols, Carter and Golden argue that the "effective use of organizational and professional influence may be the best hope for accomplishing inclusion of women in academia (p. 389)."

Organizational and professional influence are the most likely means available to senior faculty women for helping junior faculty. Fortunately, this kind of help is also the most benign. There is less opportunity for exploitation and less likelihood for dependency to develop. Senior women can share their knowledge, be

a sounding board, and offer introductions, advice and counsel to junior women. Although the primary intent is for junior women to gain career assistance, the relationship can be mutually enhancing. The two can become friends; they can collaborate; they can build a peer relationship.

The colleague pairing program explored in this study provides the foundation for this kind of relationship between senior and junior faculty women. Participation in the program was voluntary, and the pairs were assigned by a program advisory board of faculty women based on a preference survey of major interests and lifestyle issues. After the initial meeting, the activities were left to the discretion of the colleague pair. The only program requirement was a brief "contract" outlining what the pair hoped to accomplish during the academic year. Monthly group meetings of the senior faculty women were held to support their efforts and to give them an opportunity to share resources. Similar meetings were held with the junior women to attend to topics of broad concern (e.g., tips on writing, developing research agendas, time management). The program was designed with multiple approaches, but the heart of it was the pairing of senior and junior women. The intent of this study is to explore the issues that women bring to these relationships, to discover how similar the issues are for each group, and how stable the issues are over the course of the program.

METHOD

Data Source

The population for this study consisted of 30 pairs of junior and senior faculty women who participated in a colleague pairing program at a major urban research university in the western United States. All the junior faculty were in tenure track positions and had held their positions for three years or less. All the senior faculty were tenured and held the rank of associate or full professor.

At the first meeting in the fall semester, prior to individual meetings of the pairs, all the participants were asked to complete an instrument designed to identify barriers to success in the academy. The instrument listed 25 potential barriers generated from the literature regarding the experiences of junior faculty. The junior faculty were asked to indicate the extent to which each barrier was important to them in their current experience on a five point Likert scale (1= of no importance, 5=of great importance). The senior faculty were asked to anticipate what barriers would be of most importance to junior faculty women.

At the end of spring semester, a post-program survey was used to examine any changes in perceptions of the barriers to success. A survey listing the same 25 barriers as the pre-program survey was mailed to each of those who participated in the program. Of the 60 total participants, 43 (72%) faculty women completed the pre-program instrument (22 senior and 21 junior faculty), and 44 (73%) completed the post-program instrument (22 senior and 22 junior faculty).

Of the total respondents, 85% (35) were Caucasian, 12% (5) were Asian, and 2% (1) were American Indian. Of the senior women, 66% (14) were married, and 33% (7) were single. Of the junior women, 40% (8) were married, and 60% (12) were single. The senior women had an average of 13.8 years of service at the university. The mean age of the junior women was 40.

Analyses

Means and standard deviations were calculated to describe the barriers perceived to be of importance to each group before and after the program. Rather than assuming normal distribution on this small population, a non-parametric test, the Mann Whitney u-test, was used to determine whether there were significant differences between the senior and junior faculty regarding the barriers. The Wilcoxen signed-rank test was used to determine whether there were significant differences before and after the program within the groups on each of the barriers. Although means as reported, it should be noted that these are transformed to mean ranks for each group and compared for significant differences as called for by the appropriate tests.

In order to identify possible underlying dimensions, a principal components factor analysis was conducted. Given the small number of respondents, this analysis is exploratory in nature; however, the opportunity to conduct factor analyses at two points in time allows us to examine the stability of the factors over time. The Mann Whitney u-test was used to determine

whether there were significant differences between the senior and junior faculty regarding the factors identified in the factor analysis. The Wilcoxen signed-rank test was used to determine whether there were significant differences regarding the factors over time within the groups.

RESULTS

Descriptive data

Table 1 provides the means and standard deviations for all the barriers for both senior and junior women as well as pre- and post-program assessments. The findings indicate close agreement between junior and senior women faculty regarding the importance of the majority of potential barriers in the pre-program data. Nonetheless, significant differences in perception occurred on feelings of isolation, teaching load, sexual harassment, insecurity, dual career issues and single parenting. In each case, senior women anticipated more difficulty than junior women were experiencing at the beginning of the year.

Ranking the barriers according to means does illustrate additional differences in priority. The junior women reported that in their experience the following five barriers were of most concern: writing, productivity, tenure clock, research support, and career goals. In contrast, senior faculty women anticipated the following five barriers to be of most concern to junior women: tenure clock, productivity, tenure procedures, isolation, and cost of living. The concerns of the junior women seem to be career

oriented, while the senior women anticipate a broader range of concerns: career, personal as well as socioeconomic.

The post-program results differ in many respects from pre-program results. Every mean of the senior women was lower in the post-program assessment than the pre-program, with the exception of writing which was slightly higher. All differences between pre- and post- mean ranks for senior women were significant ($p<.05$). Similarly, almost all the means of the junior women were lower, with the exception of department relations, department chair relations and cost of living, which all increased. All differences between pre- and post- mean ranks for junior women were significant, with the exception of single parenting ($p<.05$).

Ranking the barriers according to means illustrates changes in perception among both senior and junior women. The junior women reported that in their experience the following five barriers were of most concern: writing, productivity, career goals, cost of living and tenure clock. In contrast, after spending time with junior women, senior faculty women perceived the following five barriers to be of most concern: tenure clock, research support, productivity, writing and teaching load. The rankings of the junior women are nearly identical to those they reported at the beginning of the program, and the senior women now report the original concerns of the junior women. Despite these differences in rankings, it is important to note that a check for significant differences between senior and junior women revealed no significant differences between their perceptions of the barriers with the exception of sexual harassment and single

parenting, which senior women perceive as more of a problem for junior women than junior women report experiencing.

Factor Analyses

The factor analysis conducted on the pre-program data resulted in a three factor solution reported in Table 2. The initial factor extraction gave seven factors with eigenvalues greater than 1.00. A scree test (Cattell, 1966) indicated that the eigenvalues started to level off after four. To determine the factor solution with the best fit, both orthogonal and oblique rotations were performed on 3-, 4-, and 5- factor solutions. The three factor oblique solution was retained because it made the most sense conceptually for this analysis.[1] Only items loading at .45 or greater are reported. Alpha coefficients calculated for each factor were .96, .94 and .86, respectively. All factors were judged reliable for purposes of analysis. This solution accounted for 48.6% of the common variance prior to rotation.

The first factor extracted had high positive loadings on ten items. Upon inspection, the items, which included feelings of isolation, fear of failure, cost of living, insecurity and sexual harassment, seemed to represent a dimension of personal security. The second factor had positive loadings on nine items including: research support, teaching load, writing, productivity, committee load, external funding, and balance between teaching and research.

[1]An orthogonal rotation was retained and discussed in a preliminary analyses of the pre-program data only (Johnsrud and Wunsch, 1991). Non- correlation was assumed for this initial analysis in order to maximize the distinctions between factors.

This factor seemed to represent the roles and responsibilities that must be met by junior faculty. The third factor had positive loadings on five items which included: career goals, student evaluations, health, departmental relations, and department chair relations. This factor seemed to represent a sense of belonging or fit that is perceived by the junior faculty.

A second principal components factor analysis was conducted on the post-program data. Essentially, the same three factors emerged with some minor, but interesting, shifts in the loadings as illustrated in Table 3. In the post-program analyses, the roles and responsibilities emerged as the first factor. One additional variable that had loaded at .36 in the pre-program analyses, manuscript rejection, loaded at .67 on the first factor. The second factor to emerge was the sense of belonging but three additional variables loaded on it: 1) cross-cultural issues and 2) support for gender and ethnic research which shifted from the personal security factor, and 3) autonomy (the need to establish one's own voice) which had not loaded in the first analysis. Finally, the third factor to emerge was personal security, which no longer included sexual harassment or dual career issues as these loaded at .37 and .10, respectively.

Alpha coefficients calculated for each factor in the post-program analysis were .97, .91 and .80, respectively. All factors were judged reliable for purposes of analysis. This solution accounted for 50% of the common variance prior to rotation.

Finally, means were calculated for each factor and were used to check whether there were significant differences on the three factors identified 1) between senior and junior faculty women, and 2) before and after program participation. The results of the Mann Whitney u-test (Table 4) indicated there was a significant difference in mean ranks between the two groups only in their perceptions of personal security in the pre-program data, with the mean rank of senior women higher than that of junior women. There was no significant difference in the mean ranks on any of the three factors in the post-program data. Moreover, the relative importance according to the means of the three factors was the same for both groups of women: roles and responsibilities was viewed as the most important issue, second was the sense of belonging, and finally, personal security.

Within group variation, however, was substantial. The results of the Wilcoxen signed-rank test indicated that there were significant differences between the senior women's perception before and after the program on all three factors. There were also significant differences between the junior women's perception before and after the program on all three factors. For all three factors, the mean ranks of both senior and junior women decreased in the post-program data. That is, the perception of the importance of the factors decreased during the program for both senior and junior women.

DISCUSSION and IMPLICATIONS

Although an exploratory study, the results are important to our understanding of the differences and commonalities of perception of senior and junior faculty women and the capacity of those perceptions to change over time. Senior and junior women perceive common potential barriers regarding the early years of their experience in the academy; nonetheless, there are important differences and perceptions do change.

Junior women in this study perceive most barriers as less problematic than their senior counterparts anticipated. The significant difference on certain issues is striking. For example, senior women anticipated significantly more feelings of isolation than junior women reported. This difference may be a function of the increasing numbers of women in faculty positions or of the very existence of programs that pair colleagues. On the other hand, it may be that junior faculty who have been on campus only a short while haven't begun to feel what the senior women have experienced: years of being the only or one of the few women in a department, on a committee, or in their discipline.

The significant difference on sexual harassment is heartening. Sexual harassment is an issue that can be debilitating when it occurs, as many senior women know, but it is not reported as part of the current experience of the majority of these junior women. Differences on such variables as single parenting and dual career issues is to be expected; senior women know that they can be critical when they are a factor for individual women;

apparently, for this group, they are not as important as anticipated.

The factors identified in the exploratory factor analysis yield further insights into the underlying dimensions of the barriers perceived by faculty women. The factors that emerged--personal security, a sense of belonging, and roles and responsibilities--speak to the stress that is felt by current junior faculty women and anticipated by those who have experienced the early years of academic life. It is interesting to note that junior and senior women perceived the barriers surrounding roles and responsibilities and the sense of belonging very similarly in the pre-program assessment. Only issues of personal security revealed significant differences in perception. Senior women anticipated more feelings of personal insecurity on the part of less experienced women than these women reported experiencing. It is possible that there was a degree of naiveté coloring the responses of those women who were relatively new to the academy. On the other hand, it may be that women are entering faculty positions with higher confidence and preparedness than their predecessors.

The shifts in loadings reflect the shifts in perceptions. Although personal security loaded first in the pre-program data, it was replaced by roles and responsibilities in the post-program data. This suggests possible changes in priorities of both senior and junior women. Similarly, the shifts in individual items such as manuscript rejection and autonomy (that is, neither loaded in the analysis of the pre-program data but both loaded in the post-

program analysis) may reflect a change in junior women's perspective of what is important to career success in the academy.

The changes in perception before and after program participation cannot, of course, be attributed causally to the program. It does seem, however, that the time spent over the course of the year as colleague pairs did result in changes of perception on the part of the senior women. By the end of the program, they reported lower concerns about virtually all the barriers they had anticipated to be detrimental. Even more intriguing is the fact that almost all of the junior women's concerns had lessened also. Whether the participation in the program was a factor or whether simply a year on the job lessened their anxiety, the change is significant and positive.

Despite these changes in perception, it is important to point out that the junior women did indicate that all three factors, roles and responsibilities, sense of belonging and personal security, are of concern. In fact, on a scale of one to five, they were ranked 3.6, 3.2 and 2.8 respectively. These factors, especially roles and responsibilities, remain matters of concern for junior faculty women.

Turner and Boice (1989) who have written extensively on new faculty raises the following question: how does the ethos of a particular academic subculture get transmitted to its new members? These findings suggest that the transmission is not one directional. Relationships between colleagues are reciprocal. Although the junior faculty were befriended, guided, and assisted by the senior women, clearly the senior women underwent change in

the process. Their anticipation of what was important to junior women beginning their careers was challenged. At the end of the academic year, they saw the experience of their junior colleagues differently then they had at the beginning. One wonders which academic subculture was more influenced: the senior women recalling their own experience and anticipating the future for junior women, or the junior women with their perceptions planted squarely in the present.

CONCLUSIONS

These findings suggest important directions for programmatic efforts to retain and advance women as well as areas of needed research. The first step in any campus program should probably be a check of the perceptions shared by senior and junior women regarding their academic careers. For faculty women to support one another, they need to understand the commonalities and differences in their perceptions of their experience in the academy. The differences can result in a lack of understanding and empathy; the commonalities can serve as the foundation on which to build mutually enhancing relationships.

Empirical data such as that reported here can serve as a catalyst for discussion and as a source of ideas for overcoming the barriers to success women faculty experience. Additional research is needed to confirm the validity of the underlying dimensions of the barriers identified in this study. Also studies must document the ways in which formal and informal relationships can help junior faculty women to overcome the barriers to their

success. Longitudinal data are needed to confirm the stability of the perceptions of faculty women over time. We need to know more about the experiences of women in the academy, both senior and junior, in order to improve the climate and to enable the success of all faculty.

We agree with Nichols, Carter and Golden (1985) when they acknowledge that it should not be necessary to have a patron in a system that is truly meritorious. But since institutional structures are slow to change and women are not encouraged to full participation, there seems little alternative but to "bore from within and to work on informal levels of organization (p. 389)." This is not to ignore institutional responsibility for the support and retention of junior women. The success of junior women should not be the responsibility of senior women. And yet, for now, women helping women within the academy may make the critical difference.

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Table 1

Means and Standard Deviations of Barriers to Success
as Perceived by Faculty Women Pre- and Post-Program

Barriers	Pre-Program				Post-Program			
	Senior Women n=22		Junior Women n=21		Senior Women n=22		Junior Women n=22	
	X	S.D.	X	S.D.	X	S.D.	X	S.D.
Feelings of isolation	4.5*	.68	3.3	1.29	3.3	1.28	2.9	1.27
Teaching load	4.3*	.96	3.5	1.26	3.8	1.24	3.5	1.30
Committee load	3.8	.94	3.6	1.01	3.6	1.27	3.0	1.27
Tenure clock	4.6	.79	4.2	1.15	4.3	.87	3.9	1.36
Research support	4.3	.80	4.2	1.15	4.2	1.18	3.6	1.40
External funding	3.9	1.10	4.0	1.14	3.7	.93	3.3	1.43
Tenure procedures	4.5	.69	3.9	1.14	3.8	1.02	3.8	1.38
Productivity	4.6	.68	4.5	.67	4.2	1.04	4.3	1.06
Support for gender/ethnic resch.	3.0	1.08	3.1	1.31	2.5	1.24	2.7	1.53
Department relations	3.8	.70	3.5	1.06	3.6	.99	3.6	.97
Department chair relations	3.9	.73	3.3	1.32	3.6	1.07	3.5	1.10
Career goals	4.3	.73	4.1	.81	3.5	1.30	4.0	.95
Student evaluations	3.9	.85	3.3	1.13	2.9	1.41	3.3	1.20
Teaching/research balance	4.3	.86	4.0	1.29	3.8	1.44	3.8	1.40
Writing	4.1	1.01	4.6	.59	4.2	1.12	4.4	1.19
Manuscript rejection	3.8	.89	3.6	1.05	2.9	1.20	2.6	1.47
Sexual harassment	3.4*	.87	2.6	1.22	2.4*	1.12	1.6	.73
Insecurity	3.8*	.85	3.0	1.21	2.6	1.07	2.6	1.22
Fear of failure	3.6	1.15	3.1	1.15	2.6	1.05	2.8	1.31
Dual career issues	3.5*	1.15	2.5	1.50	3.2	1.46	2.5	1.44
Single parenting	3.5*	1.12	1.8	1.18	2.4*	1.50	1.4	.85
Cross-cultural issues	3.5	1.03	2.9	1.07	2.3	1.26	2.9	1.49
Cost of living	4.5	.75	3.7	1.39	3.8	1.21	4.1	1.13
Health	3.3	1.23	3.3	1.32	2.8	1.43	2.6	1.14
Autonomy	3.4	1.22	3.7	1.01	3.4	1.14	3.1	1.20

*significant difference between senior and junior faculty women on mean ranks, $p<.05$, Mann-Whitney U

Table 2

Summary of Principal Component Analysis with Oblique Transformation
Three Factor Extraction--Pre-Program

Item	Factor Loading		
	1	2	3
Sexual harassment	.73		
Fear of failure	.72		
Insecurity	.71		
Dual career	.69		
Single parenting	.65		
Isolation	.61		
Cost of living	.61		
Cross-cultural	.57		
Tenure clock	.57		
Research support		.75	
Committee load		.65	
External funding		.64	
Teaching/research balance		.59	
Teaching load		.58	
Writing		.54	
Tenure procedures		.52	
Support for gender/ethnic research		.44	
Productivity		.42	
Department chair relations			.75
Career goals			.66
Student evaluations			.66
Department relations			.61
Health			.55
% of variance Explained	23.7	14.8	10.1
Eigenvalue	5.9	3.7	2.5

Table 3

Summary of Principal Component Analysis with Oblique Transformation
Three Factor Extraction--Post-Program

Item	Factor Loading		
	1	2	3
Writing	.82		
Research support	.81		
Teaching/research balance	.78		
Productivity	.75		
Teaching load	.66		
Manuscript rejection	.62		
External funding	.57		
Tenure clock	.53		
Tenure procedures	.52		
Committee load	.44		
Career goals		.77	
Cross-cultural		.68	
Student evaluations		.65	
Department chair relations		.64	
Autonomy		.63	
Department relations		.54	
Support for gender/ethnic research		.51	
Health		.47	
Fear of failure			.74
Insecurity			.68
Single parenting			.59
Cost of living			.50
Isolation			.49
% of variance Explained	28.1	12.8	9.1
Eigenvalue	7.0	3.2	2.3

Table 4

Means and Standard Deviations of Factors Extracted in Principal Components Factor Analyses

Factors	Pre-Program				Post-Program			
	Senior Women n=22		Junior Women n=21		Senior Women n=22		Junior Women n=22	
	X	S.D.	X	S.D.	X	S.D.	X	S.D.
Roles and Responsibilities*	4.2	.47	4.0	.70	3.8	.75	3.6	.96
Sense of Belonging*	3.9	.56	3.5	.82	3.1	.81	3.2	.80
Personal Security*	3.7**	.67	2.9	.80	2.9	.85	2.8	.68

*significant differences between pre- and post-program on mean ranks, $p<.05$, Wilcoxen signed-rank

**significant difference between senior and junior faculty women on mean ranks, $p<.05$, Mann-Whitney U